

L Number	Hits	Search Text	DB	Time stamp
1	2327	345/100 or 345/98 or 345/92 or 345/93 or 345/205 or 345/206	USPAT; US-PPGPUB	2002/02/21 19:12
4	255	source and drive and driver and buffer\$ and laser and parallel and active adj matrix	USPAT; US-PPGPUB	2002/02/21 19:21
7	10226	349/\$.cccls.	USPAT; US-PPGPUB	2002/02/21 19:20
10	54354	327/\$.cccls.	USPAT; US-PPGPUB	2002/02/21 19:20
13	198	source and drive and driver and buffer\$ and laser and parallel and active adj matrix and (tft or thin adj film adj2 transistor\$)	USPAT; US-PPGPUB	2002/02/21 19:23
16	190	source and drive and driver and buffer\$ and laser and parallel and active adj matrix and (tft or thin adj film adj2 transistor\$) and gate	USPAT; US-PPGPUB	2002/02/21 19:25
19	42	source and drive and driver and buffer\$ and laser and parallel and active adj matrix and (tft or thin adj film adj2 transistor\$) and gate and stagger	USPAT; US-PPGPUB	2002/02/21 19:28
25	1	source and drive and driver and buffer\$ and laser and parallel and active adj matrix and (tft or thin adj film adj2 transistor\$) and gate and stagger and ldd and analog adj buffer	USPAT; US-PPGPUB	2002/02/21 19:31
22	23	source and drive and driver and buffer\$ and laser and parallel and active adj matrix and (tft or thin adj film adj2 transistor\$) and gate and stagger and ldd	USPAT; US-PPGPUB	2002/02/21 21:06
28	0	327/\$.cccls. and (source and drive and driver and buffer\$ and laser and parallel and active adj matrix and (tft or thin adj film adj2 transistor\$))	USPAT; US-PPGPUB	2002/02/21 19:35
31	32	349/\$.cccls. and (source and drive and driver and buffer\$ and laser and parallel and active adj matrix and (tft or thin adj film adj2 transistor\$))	USPAT; US-PPGPUB	2002/02/21 19:36
40	2	349/\$.cccls. and (source and drive and driver and buffer\$ and laser and parallel and active adj matrix and (tft or thin adj film adj2 transistor\$) and gate and stagger and ldd)	USPAT; US-PPGPUB	2002/02/21 19:36
37	7	349/\$.cccls. and (source and drive and driver and buffer\$ and laser and parallel and active adj matrix and (tft or thin adj film adj2 transistor\$) and gate and stagger)	USPAT; US-PPGPUB	2002/02/21 19:51
34	32	349/\$.cccls. and (source and drive and driver and buffer\$ and laser and parallel and active adj matrix and (tft or thin adj film adj2 transistor\$) and gate)	USPAT; US-PPGPUB	2002/02/21 20:05
43	5	349/\$.cccls. and (source and drive and driver and buffer\$ and laser and parallel and active adj matrix and (tft or thin adj film adj2 transistor\$) and gate) and oblique	USPAT; US-PPGPUB	2002/02/21 20:05
46	3940	source adj follower\$	USPAT; US-PPGPUB	2002/02/21 21:07
49	298	analog adj buffer\$	USPAT; US-PPGPUB	2002/02/21 21:08
52	19	((source adj follower\$) or (analog adj buffer\$)) near parallel	USPAT; US-PPGPUB	2002/02/21 21:09
55	3	((source adj follower\$) or (analog adj buffer\$)) near parallel and active adj matrix	USPAT; US-PPGPUB	2002/02/21 21:09
-	367	345/629	USPAT; US-PPGPUB	2001/08/31 12:34

U	I	Document ID	Issue Date	Pages	Title	Current OR	Current XRef	Ref
1	<input checked="" type="checkbox"/>	US 6337677 B1	20020108	33	Liquid crystal display device, driving method for	345/100	345/98	
2	<input checked="" type="checkbox"/>	US 6268842 B1	20010731		Thin film transistor circuit and semiconductor display	345/98	330/257; 330/288;	
3	<input checked="" type="checkbox"/>	US 6166715 A	20001226		Thin-film transistor liquid-crystal display	345/100	345/98; 345/99	
4	<input checked="" type="checkbox"/>	US 6057183 A	20000502	19	Manufacturing method of drive circuit of active	438/166	438/155; 438/486	
5	<input checked="" type="checkbox"/>	US 6023260 A	20000208		Liquid crystal display device, driving method for	345/100	345/98	
6	<input checked="" type="checkbox"/>	US 5936617 A	19990810		Display apparatus	345/204	345/611; 348/241;	
7	<input checked="" type="checkbox"/>	US 5859626 A	19990112		Display circuit which automatically deciphers	345/99	345/682; 345/698	
8	<input checked="" type="checkbox"/>	US 5798742 A	19980825		Active matrix panel and method for fabricating the	345/98	345/100	
9	<input checked="" type="checkbox"/>	US 5633653 A	19970527		Simultaneous sampling of demultiplexed data and	345/98	345/204; 345/206	
10	<input checked="" type="checkbox"/>	US 5523772 A	19960604		Source driving device of a liquid crystal display	345/98	345/100	
11	<input checked="" type="checkbox"/>	US 5461424 A	19951024		Display control apparatus and method for driving a	348/443	345/100; 348/458;	
12	<input checked="" type="checkbox"/>	US 5335023 A	19940802	11	Multi-standard video matrix display apparatus and its	348/800	345/100; 348/458	
13	<input checked="" type="checkbox"/>	US 5633653 A	19971009		Data driver for liquid crystal display -			
14	<input checked="" type="checkbox"/>	EP 565167 A	20001201		Multi standard video display appts. - has control circuit			



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 L6: (6) "5376926"

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"5376926"

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	U	I	Document ID	Issue Date	Pages	Title	Current OR	Current XRef	Ret
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 6057183 A	20000502	19	Manufacturing method of drive circuit of active	438/166	438/155; 438/486	
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 5942856 A	19990824		Thin film transistor circuit and display utilizing the	315/169.3	315/169.2; 345/87;	
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 5680149 A	19971021		Driving circuit for driving liquid crystal display	345/98	345/87	
4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 5376926 A	19941227	6	Liquid crystal driver circuit	345/89	345/98	
5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 5376926 A	19941227		Liquid crystal driver circuit			
6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	JP 05061432 A	19930312		Liquid crystal driver circuit with low output			

Hits Details HTML



L185: (11) 164 and stagger
 L199: (34) (tft or thin adj film adj2 transistor) and stagger and koyama
 L206: (1) "5376926". PN.
 L207: (2) "6057183"
 L214: (134) ldd and 164
 L221: (75) ldd and 164 and
 L228: (49) ldd and 164 and
 L235: (12) ldd and 164 and

DB: USPA1 US-PC1 US-EPO1 JP1 DE1 WO1 DE21 ID1
 Plural:
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ldd and 164 and buffer and (tft or thin adj film adj2 transistor\$1) and stagger and buffer and circuit\$1

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1	<input checked="" type="checkbox"/>	US 20020011983	20020131	39	Semiconductor device	345/92	
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2	<input checked="" type="checkbox"/>	US 20020011978	20020131		Display device and method of manufacturing the same	345/87	
	<input type="checkbox"/> A1						
3	<input checked="" type="checkbox"/>	US 20010045931	20011129	19	Drive circuit of active matrix type display device	345/92	
	<input type="checkbox"/> A1						
4	<input checked="" type="checkbox"/>	US 20010035863	20011101		Electronic device and driving method thereof	345/205	
	<input type="checkbox"/> A1						
5	<input checked="" type="checkbox"/>	US 20010026125	20011004		Light emitting device and a method of manufacturing the	313/505	313/506; 345/80;
	<input type="checkbox"/> A1						
6	<input checked="" type="checkbox"/>	US 20010022572	20010920		Electro-optical apparatus and electronic device	345/98	345/100; 345/211;
	<input type="checkbox"/> A1						
7	<input checked="" type="checkbox"/>	US 6271818 B1	20010807	37	Semiconductor device	345/92	257/59; 345/98
	<input type="checkbox"/>						
8	<input checked="" type="checkbox"/>	US 6262702 B1	20010717		Electro-optical device and electronic apparatus	345/87	345/100; 345/98
	<input type="checkbox"/>						
9	<input checked="" type="checkbox"/>	US 6219113 B1	20010417		Method and apparatus for driving an active matrix	349/42	345/98; 349/43;
	<input type="checkbox"/>						
10	<input checked="" type="checkbox"/>	US 6172671 B1	20010109	21	Active matrix type display device and fabrication	345/205	257/59; 257/72;
	<input type="checkbox"/>						
11	<input checked="" type="checkbox"/>	US 6147667 A	20001114	37	Semiconductor device	345/92	257/59; 345/98
	<input type="checkbox"/>						

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 L207: (2) "6057183"
 L214: (134) ldd and 164
 L221: (75) ldd and 164 and
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 L235: (12) ldd and 164 and

DBs: USPAT, US-PPGPUB, EPO, JPO, DERWENT, IBM-TDB Plurals Highlight all hi terms initially

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2	<input checked="" type="checkbox"/>	US 20020011978	20020131		Display device and method of manufacturing the same	345/87	
3	<input checked="" type="checkbox"/>	US 20010045931	20011129	19	Drive circuit of active matrix type display device	345/92	
4	<input checked="" type="checkbox"/>	US 20010035863	20011101		Electronic device and driving method thereof	345/205	
5	<input checked="" type="checkbox"/>	US 20010026125	20011004		Light emitting device and a method of manufacturing the	313/505	313/506; 345/80;
6	<input checked="" type="checkbox"/>	US 20010022572	20010920		Electro-optical apparatus and electronic device	345/98	345/100; 345/211;
7	<input checked="" type="checkbox"/>	US 6271818 B1	20010807	37	Semiconductor device	345/92	257/59; 345/98
8	<input checked="" type="checkbox"/>	US 6262702 B1	20010717		Electro-optical device and electronic apparatus	345/87	345/100; 345/98
9	<input checked="" type="checkbox"/>	US 6219113 B1	20010417		Method and apparatus for driving an active matrix	349/42	345/98; 349/43;
10	<input checked="" type="checkbox"/>	US 6172671 B1	20010109	21	Active matrix type display device and fabrication	345/205	257/59; 257/72;
11	<input checked="" type="checkbox"/>	US 6147667 A	20001114	37	Semiconductor device	345/92	257/59; 345/98
12	<input checked="" type="checkbox"/>	US 5764206 A	19980609	17	Drive circuit and method for designing the same	345/80	257/59; 345/98;

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DBs: USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM-TDB

Phrases

Default operator: OR

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ldd and 164 and buffer and (tft or thin adj film adj2 transistor\$1) and stagger and buffer and circuit\$1 and koyama

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U	I	Document ID	Issue Date	Pages	Title	Current OR	Current XRef	R
1	<input checked="" type="checkbox"/>	US 20020011983 A1	20020131	39	Semiconductor device	345/92		
2	<input checked="" type="checkbox"/>	US 20010045931 A1	20011129	19	Drive circuit of active matrix type display device	345/92		
3	<input checked="" type="checkbox"/>	US 6271818 B1	20010807	37	Semiconductor device	345/92	257/59; 345/98	
4	<input checked="" type="checkbox"/>	US 6172671 B1	20010109	21	Active matrix type display device and fabrication	345/205	257/59; 257/72;	
5	<input checked="" type="checkbox"/>	US 6147667 A	200001114	37	Semiconductor device	345/92	257/59; 345/98	
6	<input checked="" type="checkbox"/>	US 5764206 A	19980609	17	Drive circuit and method for designing the same	345/80	257/59; 345/98;	

KWIC

DWKU:
6057183DID:
US 6057183 A

DEPR:
 FIG. 4 shows a fourth embodiment of the invention. In this embodiment, source followers are arranged at a pitch d , and the laser light illumination width L is equal to $4d$. Two source followers that are located in an oblique direction are connected to each other in parallel.

DEPR:
 FIG. 5 shows a fifth embodiment of the invention. In this embodiment, source followers are arranged at a pitch d , and the laser light illumination width L is equal to $4d$. Three source followers located in an oblique direction are connected together in parallel.

CLPV:
 wherein each of the buffer circuits is arranged obliquely with respect to said first direction so that a portion of at least one of the buffer circuits is positioned in the same line along said first direction as a portion of at least another one of the buffer circuits.

United States Patent [A]

Koyama et al.

Patent Number: 6,057,183
Date of Patent: May 2, 2000

(14) MANUFACTURING METHOD OF DRIVE CIRCUIT OF ACTIVE MATRIX DEVICE

6,057,183 US6057183A 2000-05-02

(13) Inventor: Jun Koyama; Pg.1 Kawasaki, both of Japan

6,057,183 US6057183A 2000-05-02

(12) Assignee: Semiconductor Energy Laboratory Co., Ltd., Kawaguchi, Japan

6,057,183 US6057183A 2000-05-02

(21) Appl. No.: 08/741,882

6,057,183 US6057183A 2000-05-02

(22) F. Date: Nov. 19, 1997

6,057,183 US6057183A 2000-05-02

Related U.S. Application Data

6,057,183 US6057183A 2000-05-02

(23) Continuation of application No. 08/421,464, Apr. 12, 1998.

6,057,183 US6057183A 2000-05-02

Abandoned

6,057,183 US6057183A 2000-05-02

(24) Prior Art Application Priority Data

6,057,183 US6057183A 2000-05-02

Apr. 23, 1998, JP, Japan

6,057,183 US6057183A 2000-05-02

(25) Int. Cl. 7

6,057,183 US6057183A 2000-05-02

G01S 13/00

6,057,183 US6057183A 2000-05-02

State of Search

6,057,183 US6057183A 2000-05-02

432104, 432105, 432106, 152

6,057,183 US6057183A 2000-05-02

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(2) United States Patent
Takahara

(3) Patent No.: US 6219113 B1
(4) Date of Patent: Apr. 17, 2001

(5) METHOD AND APPARATUS FOR DRIVING
AN ACTIVE MATRIX DISPLAY PANEL

(7) Inventor: Hiroshi Takahara, Nagoya, JP

(9) Assignee: Matsushita Electric Industrial Co.,
Ltd., Osaka, JP

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(11) Appl. No.: 09/393,366

(12) Filing Date: Feb. 27, 1997

(13) Foreign Application Priority Data

Cor. to JP 1996 02 27 363,077

Cor. to JP 1995 02 27 363,078

Cor. to JP 1995 02 27 363,079

(21) Int. Cl. 7: G09G 3/30; G09G 3/32

(23) U.S. Cl. 348/102, 348/103, 348/104

(31) Field of Search: 348/102, 348/103

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[0068] FIG. 4 shows a fourth embodiment of the invention. In this embodiment, source followers are arranged at a pitch d , and the laser light illumination width L is equal to $4d$. Two source followers that are located in an oblique direction are connected to each other in parallel.

[0069] The laser light is first applied to source followers (p, q) , $(p+1, q)$, $(p+2, q)$, $(p+3, q)$, $(p, q+1)$, $(p+1, q+1)$, $(p+2, q+1)$ and $(p+3, q+1)$.

[0070] The laser light is then moved so as to illuminate source followers $(p+3, q)$, $(p+4, q)$, $(p+5, q)$, $(p+6, q)$, $(p+3, q+1)$, $(p+4, q+1)$, $(p+5, q+1)$ and $(p+6, q+1)$.

[0071] By connecting to each other in parallel the source followers (p, q) and $(p+1, q+1)$, the source followers $(p+1, q)$ and $(p+2, q+1)$, the source followers $(p+2, q)$ and $(p+3, q+1)$, the source followers $(p+3, q)$ and $(p+4, q+1)$, the source followers $(p+4, q)$ and $(p+5, q+1)$, and the source followers $(p+5, q)$ and $(p+6, q+1)$ as shown in FIG. 4, the characteristics of the source followers are averaged, so that variations in the characteristics caused by the laser illumination can be reduced.

[0072] FIG. 5 shows a fifth embodiment of the invention. In this embodiment, source followers are arranged at a pitch d , and the laser light illumination width L is equal to $4d$. Three source followers located in an oblique direction are connected together in parallel.

[0073] The laser light is first applied to source followers (p, q) , $(p+1, q)$, $(p+2, q)$, $(p+3, q)$, $(p, q+1)$, $(p+1, q+1)$, $(p+2, q+1)$, $(p+3, q+1)$, $(p, q+2)$, $(p+1, q+2)$, $(p+2, q+2)$ and $(p+3, q+2)$.

[0074] The laser light is then moved so as to illuminate source followers $(p+3, q)$, $(p+4, q)$, $(p+5, q)$, $(p+6, q)$, $(p+3, q+1)$, $(p+4, q+1)$, $(p+5, q+1)$, $(p+6, q+1)$, $(p+3, q+2)$, $(p+4, q+2)$, $(p+5, q+2)$ and $(p+6, q+2)$.

[0075] Since the source followers (p, q) , $(p, q+1)$, $(p, q+2)$, $(p+3, q)$, $(p+3, q+1)$, $(p+3, q+2)$, $(p+6, q)$, $(p+6, q+1)$ and $(p+6, q+2)$ are illuminated twice with the laser light, they have the threshold voltage $V_{sub.thL}$ (see FIG. 8).

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[0072] FIG. 5 shows a fifth embodiment of the invention. In this embodiment, source followers are arranged at a pitch d , and the laser light illumination width L is equal to $4d$. Three source followers located in an oblique direction are connected together in parallel.

[0073] The laser light is first applied to source followers (p, q) , $(p+1, q)$, $(p+2, q)$, $(p+3, q)$, $(p, q+1)$, $(p+1, q+1)$, $(p+2, q+1)$, $(p+3, q+1)$, $(p, q+2)$, $(p+1, q+2)$, $(p+2, q+2)$ and $(p+3, q+2)$.

[0074] The laser light is then moved so as to illuminate source followers $(p+3, q)$, $(p+4, q)$, $(p+5, q)$, $(p+6, q)$, $(p+3, q+1)$, $(p+4, q+1)$, $(p+5, q+1)$, $(p+6, q+1)$, $(p+3, q+2)$, $(p+4, q+2)$, $(p+5, q+2)$ and $(p+6, q+2)$.

[0075] Since the source followers (p, q) , $(p, q+1)$, $(p, q+2)$, $(p+3, q)$, $(p+3, q+1)$, $(p+3, q+2)$, $(p+6, q)$, $(p+6, q+1)$ and $(p+6, q+2)$ are illuminated twice with the laser light, they have the threshold voltage $V_{sub.thL}$ (see FIG. 8).

[0076] Since the source followers $(p+1, q)$, $(p+2, q)$, $(p+1, q+1)$, $(p+2, q+1)$, $(p+1, q+2)$, $(p+2, q+2)$, $(p+4, q)$, $(p+5, q)$, $(p+4, q+1)$, $(p+5, q+1)$, $(p+4, q+2)$ and $(p+5, q+2)$ are illuminated only once with the laser light, they have the threshold voltage $V_{sub.thH}$ (see FIG. 8).

[0077] By connecting together in parallel the source followers (p, q) , $(p+1, q+1)$ and $(p+2, q+2)$, the source followers $(p+1, q)$, $(p+2, q+1)$ and $(p+3, q+2)$, the source followers $(p+2, q)$, $(p+3, q+1)$ and $(p+4, q+2)$, the source followers $(p+3, q)$, $(p+4, q+1)$ and $(p+5, q+2)$, and the source followers $(p+4, q)$, $(p+5, q+1)$ and $(p+6, q+2)$ as shown in FIG. 5, one of the three source followers of each combination is illuminated twice with the laser light and the other two source followers are illuminated only once. By combining the source followers in the above manner, the source followers of every set are made uniform, so that variations in the characteristics caused by the laser illumination can be eliminated.

[0078] As described above, by connecting in parallel the source followers that use thin-film transistors, the invention can suppress a variation of the threshold voltage $V_{sub.th}$ due to overlapping of laser light illumination



29. An active matrix device comprising: a plurality of pixels; a plurality of switching elements formed over a substrate for switching said plurality of pixels; at least one driver circuit formed over said substrate for driving said plurality of switching elements through a plurality of signal lines extending substantially in a first direction; a plurality of buffer circuits in said driver circuit wherein said buffer circuits are connected to said plurality of signal lines, and wherein each of the buffer circuits is arranged obliquely with respect to said first direction so that a portion of at least one of the buffer circuits is positioned in a same line along said first direction as a portion of at least another one of the buffer circuits.

30. An active matrix device according to claim 29 wherein each of said switching elements comprises a thin film transistor.

31. An active matrix device according to claim 29 wherein said driver circuit is a source driver circuit.

32. An active matrix device according to claim 29 wherein each of said buffer circuits comprises at least one thin film transistor having a crystallized semiconductor film.

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